

METHOD AND APPARATUS FOR REVIEWING VOLTAGE CONTRAST DEFECTS IN SEMICONDUCTOR WAFERS

ABSTRACT OF THE DISCLOSURE

5 Techniques for identifying, locating, detecting, and reviewing voltage contrast defects are described. A system for implementing the present invention includes a charged particle beam defect review system with one or more installed electron flood guns. In order to review a semiconductor specimen, an entire semiconductor wafer or a sub-region of a wafer is flooded with electrons from the flood gun(s) so that the wafer
10 surface is charged to ~~certain~~ a certain voltage level. Flooding the specimen greatly enhances the effect of voltage contrast review techniques and therefore manifests voltage contrast defects that would not appear otherwise. The inventive techniques can also be applied so that a review system can be used to inspect at least a portion of a semiconductor wafer. Techniques for controlling the amount of negative charge applied
15 to the specimen are also described.